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| APPLICATION NO.          | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------|-------------|----------------------|---------------------|------------------|
| 09/778,045               | 02/07/2001  | Takahisa Kurahashi   | 925-177             | 6211             |
| 23117                    | 7590        | 09/08/2004           | EXAMINER            |                  |
| NIXON & VANDERHYE, PC    |             |                      |                     | CRANE, SARA W    |
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| ARLINGTON, VA 22201-4714 |             |                      |                     | 2811             |
| ART UNIT                 |             |                      |                     |                  |
| PAPER NUMBER             |             |                      |                     |                  |

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |                  |
|------------------------------|-----------------|------------------|
| <b>Office Action Summary</b> | Application No. | Applicant(s)     |
|                              | 09/778,045      | KURAHASHI ET AL. |
|                              | Examiner        | Art Unit         |
|                              | Sara W. Crane   | 2811             |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 22 June 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-25 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-8, 15-22, 25-26 is/are rejected.  
 7) Claim(s) 23 and 24 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Allowable Subject Matter***

Claims 23-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-8, 15-22, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krames et al. in view of Saeki and Vakshoori.

See reasons of record, in particular in the Office action of 24 September 2003. With respect to newly-added claims 21-22, differences in lattice constant as recited would have been obvious in order to allow for different type of semiconductor layers within the device that give rise to different desired wavelength outputs. With respect to claims 25-26, the Saeki device has only a lower reflecting layer, and motivates leaving out the top DBR of the Krames device, if the function of this structure is not desired.

### ***Conclusion***

Applicant argues with respect to the rejected claims that the device of Krames figure 13 does not show diffuse light emission. The lobes shown at "emission profile" in this figure show the distribution of light as emitted, and the lobes indicate that the emission is not specular. There is a distribution in the directions of emitted light, and

that is exactly what is meant by diffuse emission. (Diffuse emission does not mean that there is no preferred direction, or that the directions of emitted light are random.)

Applicant argues that the spread is internal only, and somehow disappears when the light is actually emitted. "Emission profile" would describe emission, however, and furthermore no mechanism is taught or suggested anywhere that could cause the lobes to become specular after emission. Applicant argues that the Vakshoori reference does not teach that a single layer can function as a mirror, because the reference teaches upper and lower single layers, each of which functions as a mirror. The reasoning is faulty. The lower single layer function as a single-layer mirror, and the upper single layer also functions as a single-layer mirror. Either teaching would suggest to one of ordinary skill a mirror comprising only a single layer. Applicant argues that light emitting devices having two mirrors function differently from light emitting devices having only a single mirror. The differences in function would be precisely what would motivate a designer to choose one configuration or the other. When one desires the known advantages of only a single mirror, one chooses this configuration. The function of emitting light is not "destroyed" in either case. The roughened surface enhances light output, and is desirable for either (or both) of the known mirror configurations, because a designer would desire enhanced output for either configuration. Applicant argues that the designer of a light emitting devices having one feature to increase light output would not be motivated to include additional features having this same goal. Examiner disagrees. More light is almost always desirable (just as more money is almost always desirable), and designers routinely do all that they can to achieve this end.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Crane, whose telephone number is (571) 272-1652.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist, whose telephone number is (571) 272-1562.



Sara W. Crane  
Primary Examiner  
Art Unit 2811